

**REMARKS**

Subsequent to entry of the foregoing amendments, claims 1, 3-8, 14 and 15 are currently pending in this application. Claim 8 has been withdrawn and claims 9-11 were previously cancelled. Claims 2, 12 and 13 are hereby cancelled, and new claims 14 and 15 are added via the foregoing Amendment.

**Drawing Objections**

Applicants respectfully submit that the foregoing amendments to claim 6 overcome the Examiner's objections to the drawings as not showing a "sensor provided on...said liquid supply passage" as recited in claim 6 (*see* Office Action page 2, item 4). Accordingly, the Examiner is respectfully requested to withdraw the objection to the drawings.

**Claim Rejections - 35 U.S.C. §112, 2<sup>nd</sup> paragraph**

Claims 5-7 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicants respectfully traverse this rejection.

In rejecting claims 6 and 7, the Examiner states that there is a structural gap in these claims. With regard to claim 6, the Examiner states that the specification discloses a controller that controls switching valve 5 and pinch valve 9. With regard to claim 7, the Examiner states that the specification discloses a controller which controls driving motor 11 and feeding device 7. The Examiner appears to believe that the valves must be recited in claim 6 and the motor or feeding device must be recited in claim 7. Applicants respectfully disagree.

As noted by the Examiner, non-limiting embodiments of the specification teach that the controller controls various other elements to perform its control function. However, there is no requirement that all of the elements in a non-limiting embodiment of the specification be included in the claims, and there is no particular need for these specific elements (valves 5, 9; motor 11; feeding device 7) to be recited in the claims. Claims 6 and 7, as currently written, are perfectly clear without such recitations. Also, the operation of the device, particularly the controller, is perfectly clear. Finally, the Examiner has failed to particularly identify why these elements must be recited in the claims. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 6 and 7.

**Claim Rejections - 35 U.S.C. §102(b)**

Claims 1-4, 6, 7 and 12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Woodward (U.S. Patent No. 5,312,040). Applicants respectfully traverse this rejection.

Claim 1 sets forth mixing and injecting a pressurized liquid and a pressurized gas. As argued in the previous response filed on August 11, 2005, Woodward is deficient in this regard.

In the present Office Action, the Examiner asserts that Applicants have improperly read Woodward (*see* "Response to Arguments" on page 6 of the Office Action). However, it appears as though the Examiner is the one who has improperly read Woodward. Particularly, the Examiner's assertion that Woodward does disclose mixing a pressurized liquid and a pressurized gas is improper. Nothing in Woodward discloses that the fluid stream 33 flows at the same time as compressed gas. In fact, Woodward consistently describes the fluid stream 33 as mixing with

the abrasive material 18, and describes the compressed gas flowing when the fluid stream is interrupted. The Examiner asserts that according to the flow chart of Fig. 5, pressurized liquid and pressurized gas would mix when the fluid pressure is less than 1,000 PSI and the water jetting operation is not interrupted. However, there is no indication that Woodward contemplates such a circumstance or that the above circumstance would ever occur in the Woodward device. That is, in Woodward, the fluid pressure would only drop below 1,000 PSI when the water jetting operation is interrupted.

As mentioned above, Woodward consistently teaches that the compressed air is fed to the nozzle 118 when the jetting (compressed liquid) is interrupted. For instance, the Abstract notes that “[t]he apparatus involves the use of a pressure actuator which opens and closes gates of a valve, permitting a compressed gas to enter the nozzle and remove all abrasive material from a nozzle *when jetting is interrupted*” (emphasis added). Column 7, lines 8-24, further explain this operation. As explained in column 7, when the high pressure fluid stream 33 flows through the nozzle dump, the pressure in the high pressure fluid conduit 32 greatly decreases. Woodward further explains that during this interrupted flow period, the pressure actuator 12 operates to open the valve inlet 22 to allow only compressed gas 60 to flow to the nozzle 118. Thus, the interrupted flow causes the pressure drop which allows the compressed gas to flow to the nozzle. This is consistent with Fig. 4, in which the gas flows through the nozzle 118, when the pressurized liquid 33 flows through the nozzle dump 120, as well as other portions of the specification that describe the gas as flowing when the high pressure fluid blasting operations are interrupted (*see* column 3, lines 13-17; column 3, line 67 to column 4, line 2; and column 7, lines

54-61). Contrary to the Examiner's assertion Woodward never discloses the situation where both the compressed liquid and the compressed gas flow to the nozzle 118.

Since Woodward fails to teach that a compressed gas and a compressed liquid both flow to the nozzle 118 at the same time, it cannot teach mixing and injecting a compressed liquid and a compressed gas as claimed. Accordingly, Applicants respectfully submit that claim 1 is allowable over Woodward. Inasmuch as claims 2-4 depend from claim 1, Applicants also submit that they are allowable at least because of their dependency.

Claim 6 sets forth that pressurized gas is supplied to the injection nozzle when the sensor detects the supply of pressurized liquid from the liquid tank to the injection nozzle. Therefore, similar to claim 1, the nozzle of claim 6 is supplied with both pressurized gas and pressurized liquid. Accordingly, Applicants respectfully submit that claim 6 is, therefore, allowable at least for reasons similar to those given with respect to claim 1. Claim 7 depends from claim 6 and Applicants also submit that it is allowable at least because of its dependency.

**Claim Rejections - 35 U.S.C. §103(a)**

Claims 5 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Woodward in view of Bok, *et al.* (U.S. Patent No. 2,980,339) ("Bok") or Liska (U.S. Patent No. 4,238,073). Applicants respectfully traverse this rejection.

Claim 5 is allowable over the combination of Woodward and either Bok or Liska at least because the Examiner's combinations fails to teach a controller which controls a powder and granular supply means as recited in claim 5. In a non-limiting embodiment of the specification

of the present application, the powder and granular supply means 11 consist of a driving motor and a screw type feeding device 7. The controller stops and starts operation of the driving motor 11. The Examiner asserts that Woodward gravity feed hopper 16 constitutes a powder and granular supply means as claimed. However, The Examiner's alleged supply means (gravity feed hopper 16) cannot constitute the claimed supply means because it is not controlled by the alleged controller 26, 28. Neither Bok nor Liska corrects this deficiency of Woodward. Accordingly, claim 5 is allowable over the combination of Woodward and Bok or Liska. Claim 13 depends from claim 5 and is, therefore, allowable at least because of its dependency.

#### **New Claims**

Claims 14 and 15 have been newly added in order to provide a more varied scope of protection. New claims 14 and 15 depend from claim 6 and are therefore allowable at least because of their dependency.

#### **Conclusion**

In view of the preceding amendments and remarks, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue that the Examiner feels may be best resolved through a personal or telephonic interview, he is kindly requested to contact the undersigned at the local telephone number listed below.

AMENDMENT UNDER 37 C.F.R. §1.111  
U.S. SERIAL NO. 10/006,568

ART UNIT 3752  
Q67594

A Petition for Extension of Time with appropriate fee accompanies this document. The USPTO is directed and authorized to charge all additional required fees (except the Issue/Publication Fees) to our Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

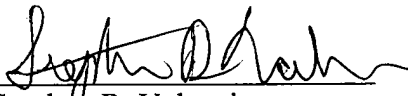
Respectfully submitted,

**SUGHRUE MION, PLLC**  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

  
Stephen R. Valancius  
Registration No. 57,574

Date: March 10, 2006